

The present invention also provides a method for producing an electron source having a plurality of electron-emitting devices, wherein said electron-emitting devices are produced by either of the above-described methods for producing the electron-emitting device.

The present invention also provides a method for producing an image-forming apparatus comprising an electron source having a plurality of electron-emitting devices and an image-forming member for forming an image under irradiation of electrons from the electron source, wherein said electron-emitting devices are produced by either of the above-described methods for producing the electron-emitting device.

BRIEF DESCRIPTION OF THE DRAWINGS

C Figs. 1A, 1B and 1C are schematic structural diagrams ^{showing} ~~to show~~ a plane type surface conduction electron-emitting device as an embodiment of the electron-emitting device of the present invention;

C Figs. 2A, 2B and 2C are diagrams ^{showing} ~~to show~~ a method for producing an electron-emitting device of the present invention;

C Fig. 3 is a schematic plan view ^{showing} ~~to show~~ an electron-emitting device in Example 1 of the present invention;

C Figs. 4A and 4B are diagrams ^{showing} ~~to show~~ examples of

forming waveforms;

C Fig. 5 is a schematic structural diagram ^{showing} ~~to show~~
C an example of ^a vacuum process apparatus according to the
present invention;

C 5 Fig. 6 is a diagram ^{showing} ~~to show~~ emission current vs.
device voltage characteristics (I-V characteristics) of
the electron-emitting device of the present invention;

C Fig. 7 is a schematic structural diagram ^{showing} ~~to show~~
an electron source of a simple matrix configuration as
10 an embodiment of the electron source of the present
invention;

Fig. 8 is a schematic structural diagram of a
display panel used in an embodiment of the image-
forming apparatus of the present invention
C 15 incorporating ^{an} ~~the~~ electron source ^{having a} ~~of the~~ simple matrix
configuration;

C Figs. 9A and 9B are diagrams ^{showing} ~~to show~~ fluorescent
films in the display panel illustrated in Fig. 8;

C Fig. 10 is a diagram ^{showing} ~~to show~~ an example of driving
20 circuitry for driving the display panel illustrated in
Fig. 8;

C Fig. 11 is a schematic structural diagram ^{showing} ~~to show~~
an electron source of a ladder-like configuration as an
embodiment of the electron source of the present
25 invention;

Fig. 12 is a schematic structural diagram of a
display panel used in an embodiment of the image-

forming apparatus of the present invention
incorporating the electron source of the ladder-like
configuration;

C Fig. 13 is a schematic plan view ^{showing} ~~to show~~ an
5 electron source in Example 3 of the present invention;

C Fig. 14 is a sectional view along ^{section line} ~~14-14~~ in Fig.
13;

C Figs. 15A, 15B, 15C and 15D are schematic
10 sectional views ^{showing} ~~to show~~ production steps of the
electron source in Example 3 of the present invention;

C Figs. 16E, 16F and 16G are schematic sectional
views ^{showing} ~~to show~~ production steps of the electron source
in Example 3 of the present invention;

15 Fig. 17 is a block diagram of an embodiment of the
image-forming apparatus of the present invention;

C Fig. 18 is a schematic structural diagram ^{showing} ~~to show~~
a conventional plane type surface conduction electron-
emitting device;

20 Fig. 19 is a schematic diagram of an apparatus
used for production of the image-forming apparatus of
the present invention;

C Fig. 20 is a schematic diagram ^{showing} ~~to show~~ an example
of a connection state of each device in the forming
step in production of the image-forming apparatus of
25 the present invention; and

C Fig. 21 is a schematic plan view ^{showing} ~~to show~~ an
example of the conventional electron-emitting devices.